

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A magnetic detecting element comprising:
a multilayer laminate including a first antiferromagnetic layer, a pinned magnetic layer, a nonmagnetic material layer, and a first free magnetic layer in that order from a bottom thereof;
a second antiferromagnetic layer disposed in a track width direction at each side of the multilayer laminate in the track width direction; and
a second free magnetic layer disposed from an upper surface of the second antiferromagnetic layer to an upper surface of the first free magnetic layer, the second free magnetic layer distinct from the first free magnetic layer.
2. (Original) A magnetic detecting element according to Claim 1, further comprising a nonmagnetic layer between the first free magnetic layer and the second free magnetic layer.
3. (Original) A magnetic detecting element according to Claim 2, wherein the nonmagnetic layer comprises at least one element selected from the group consisting of Cu, Ru, Re, Pd, Os, Ir, Pt, Au, Rh, and Cr.
4. (Original) A magnetic detecting element according to Claim 1, further comprising a ferromagnetic layer between the second antiferromagnetic layer and the second free magnetic layer.
5. (Original) A magnetic detecting element according to Claim 4, further comprising a nonmagnetic layer between the ferromagnetic layer and the second free magnetic layer.
6. (Previously Presented) A magnetic detecting element according to Claim 1, further comprising a specular layer on an upper surface of the second free magnetic layer in at least a region opposing the multilayer laminate in a thickness direction.

7. (Original) A magnetic detecting element according to Claim 6, wherein the specular layer comprises: an oxide selected from the group consisting of Fe-O, Ni-O, Co-O, Co-Fe-O, Co-Fe-Ni-O, Al-O, Al-Q-O, and R-O; a nitride selected from the group consisting of Al-N, Al-Q'-N and R'-N; or a semimetallic whistler alloy, wherein Q is at least one selected from the group consisting of B, Si, N, Ti, V, Cr, Mn, Fe, Co, and Ni, R is at least one selected from the group consisting of Cu, Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, and W, Q' is at least one selected from the group consisting of B, Si, O, Ti, V, Cr, Mn, Fe, Co, and Ni, and R' is at least one selected from the group consisting of Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, and W.

8. (Original) A magnetic detecting element according to Claim 1, further comprising a specular layer between the first free magnetic layer and the second free magnetic layer.

9. (Previously Presented) A magnetic detecting element according to Claim 1, further comprising a backed layer on an upper surface of the second free magnetic layer in at least a region opposing the multilayer laminate in a thickness direction.

10. (Original) A magnetic detecting element according to Claim 9, wherein the backed layer comprises an element selected from the group consisting of Cu, Au, Cr, and Ru.

11. (Previously Presented) A magnetic detecting element according to Claim 1, further comprising a third antiferromagnetic layer above the second free magnetic layer in a region opposing the second antiferromagnetic layer in a thickness direction.

12. (Original) A magnetic detecting element according to Claim 11, further comprising a ferromagnetic layer between the third antiferromagnetic layer and the second free magnetic layer.

13. (Original) A magnetic detecting element according to Claim 11, further comprising a fourth antiferromagnetic layer between the third antiferromagnetic layer and the second free magnetic layer.

14. (Currently Amended) A magnetic detecting element according to Claim 11, wherein the third antiferromagnetic layer possesses a space in the track width direction dividing the third antiferromagnetic layer in the track width direction above further comprising a nonmagnetic layer in a space dividing the second antiferromagnetic layer in the track width direction, above the second free magnetic layer and wherein a nonmagnetic layer is in the space.

15. (Previously Presented) A magnetic detecting element according to Claim 1, wherein an angle θ_1 between a lower surface of the multilayer laminate and each side surface of the multilayer laminate is in the range of 60° to 90° .

16. (Previously Presented) A magnetic detecting element according to Claim 1, further comprising an electrode layer above the second free magnetic layer in a region opposing the second antiferromagnetic layer in a thickness direction.

17. (Original) A magnetic detecting element according to Claim 1, further comprising: an upper electrode above the multilayer laminate; and a lower electrode under the multilayer laminate.

18. (Original) A magnetic detecting element according to Claim 17, further comprising an insulating layer between the lower electrode layer and the second antiferromagnetic layer and between the second antiferromagnetic layer and each end surface of the multilayer laminate.

19. (Previously Presented) A magnetic detecting element according to Claim 17, further comprising an insulating layer between the upper electrode layer and the second free magnetic layer in a region opposing the second antiferromagnetic layer in a thickness direction.

20. (Previously Presented) A magnetic detecting element according to Claim 11, further comprising an insulating layer between an upper electrode layer and the third antiferromagnetic layer.

21-77. (Cancelled)

78. (New) A magnetic detecting element according to Claim 1, wherein the second free magnetic layer extending over the upper surface of the second

antiferromagnetic layer and the upper surface of the first free magnetic layer is continuous.